

```

In[1]:= data = {112, 118, 132, 129, 121, 135, 148, 148, 136, 119, 104, 118, 115, 126, 141, 135,
  125, 149, 170, 170, 158, 133, 114, 140, 145, 150, 178, 163, 172, 178, 199, 199,
  184, 162, 146, 166, 171, 180, 193, 181, 183, 218, 230, 242, 209, 191, 172, 194,
  196, 196, 236, 235, 229, 243, 264, 272, 237, 211, 180, 201, 204, 188, 235, 227,
  234, 264, 302, 293, 259, 229, 203, 229, 242, 233, 267, 269, 270, 315, 364, 347,
  312, 274, 237, 278, 284, 277, 317, 313, 318, 374, 413, 405, 355, 306, 271, 306,
  315, 301, 356, 348, 355, 422, 465, 467, 404, 347, 305, 336, 340, 318, 362, 348,
  363, 435, 491, 505, 404, 359, 310, 337, 360, 342, 406, 396, 420, 472, 548, 559,
  463, 407, 362, 405, 417, 391, 419, 461, 472, 535, 622, 606, 508, 461, 390, 432}

KU = {};
Do[AppendTo[KU, {j, data[[j]]}]], {j, 1, Length[data]};
… 追加割当て 長さ
KU
AIRPASSENGERSDATA = ListPlot[KU]
リストプロット

training = RandomSample[List /@ Most[#] → List@Last[#] & /@ (Partition[data, 11, 1])]
乱数のサンプル リスト 最後の… リスト 最後 重複しないサブリストに分割

net =
NetChain[{GatedRecurrentLayer[10], LinearLayer[1]}, "Input" → {10, 1}, "Output" → 1]
ネットワ… ゲート付き回帰層 線形層 入力を要求

trained = NetTrain[net, training]
ネットワークの訓練

KARA = {};
Do[ten[j] = Transpose[{data[[j ;; j + 9]]}]], {j, 1, Length[data] - 9};
反復指定 転置
POINT[j + 1] = Flatten[{j + 10, trained[ten[j]]}];
平滑化
AppendTo[KARA, POINT[j + 1]], {j, 1, Length[data] - 9};
追加割当て 長さ

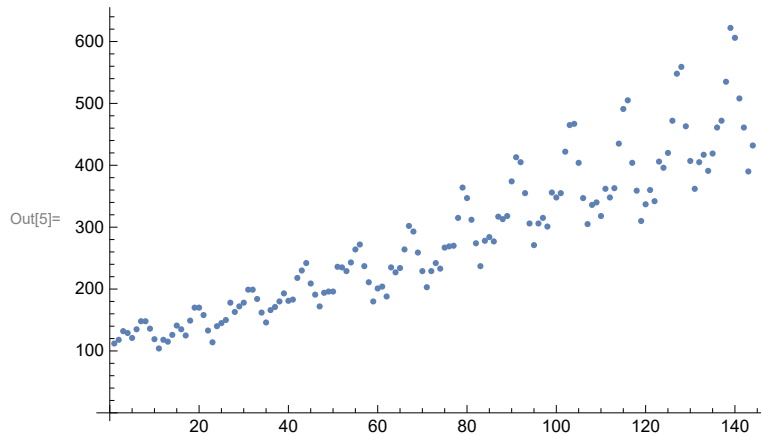
KARA
PREDICTIONDATA = ListPlot[KARA, PlotStyle → Red]
リストプロット プロット… 赤

Show[AIRPASSENGERSDATA, PREDICTIONDATA]
示す

Out[1]= {112, 118, 132, 129, 121, 135, 148, 148, 136, 119, 104, 118, 115, 126, 141, 135,
  125, 149, 170, 170, 158, 133, 114, 140, 145, 150, 178, 163, 172, 178, 199, 199,
  184, 162, 146, 166, 171, 180, 193, 181, 183, 218, 230, 242, 209, 191, 172, 194,
  196, 196, 236, 235, 229, 243, 264, 272, 237, 211, 180, 201, 204, 188, 235, 227,
  234, 264, 302, 293, 259, 229, 203, 229, 242, 233, 267, 269, 270, 315, 364, 347,
  312, 274, 237, 278, 284, 277, 317, 313, 318, 374, 413, 405, 355, 306, 271, 306,
  315, 301, 356, 348, 355, 422, 465, 467, 404, 347, 305, 336, 340, 318, 362, 348,
  363, 435, 491, 505, 404, 359, 310, 337, 360, 342, 406, 396, 420, 472, 548, 559,
  463, 407, 362, 405, 417, 391, 419, 461, 472, 535, 622, 606, 508, 461, 390, 432}

```

```
Out[4]= {{1, 112}, {2, 118}, {3, 132}, {4, 129}, {5, 121}, {6, 135}, {7, 148}, {8, 148}, {9, 136},
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{18, 149}, {19, 170}, {20, 170}, {21, 158}, {22, 133}, {23, 114}, {24, 140}, {25, 145},
{26, 150}, {27, 178}, {28, 163}, {29, 172}, {30, 178}, {31, 199}, {32, 199},
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{47, 172}, {48, 194}, {49, 196}, {50, 196}, {51, 236}, {52, 235}, {53, 229},
{54, 243}, {55, 264}, {56, 272}, {57, 237}, {58, 211}, {59, 180}, {60, 201},
{61, 204}, {62, 188}, {63, 235}, {64, 227}, {65, 234}, {66, 264}, {67, 302},
{68, 293}, {69, 259}, {70, 229}, {71, 203}, {72, 229}, {73, 242}, {74, 233},
{75, 267}, {76, 269}, {77, 270}, {78, 315}, {79, 364}, {80, 347}, {81, 312},
{82, 274}, {83, 237}, {84, 278}, {85, 284}, {86, 277}, {87, 317}, {88, 313},
{89, 318}, {90, 374}, {91, 413}, {92, 405}, {93, 355}, {94, 306}, {95, 271},
{96, 306}, {97, 315}, {98, 301}, {99, 356}, {100, 348}, {101, 355}, {102, 422},
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{124, 396}, {125, 420}, {126, 472}, {127, 548}, {128, 559}, {129, 463}, {130, 407},
{131, 362}, {132, 405}, {133, 417}, {134, 391}, {135, 419}, {136, 461}, {137, 472},
{138, 535}, {139, 622}, {140, 606}, {141, 508}, {142, 461}, {143, 390}, {144, 432}}
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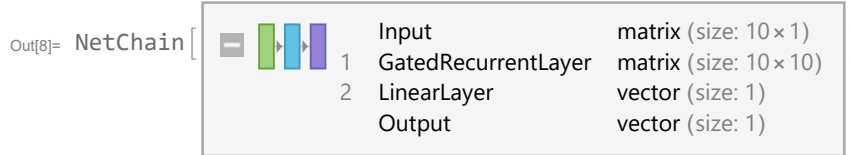
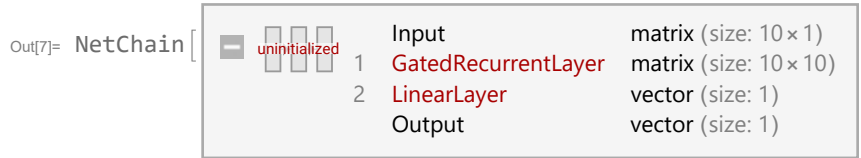


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{ {118}, {115}, {126}, {141}, {135}, {125}, {149}, {170}, {170}, {158}} → {133},
{ {234}, {264}, {302}, {293}, {259}, {229}, {203}, {229}, {242}, {233}} → {267},
{ {227}, {234}, {264}, {302}, {293}, {259}, {229}, {203}, {229}, {242}} → {233},
{ {193}, {181}, {183}, {218}, {230}, {242}, {209}, {191}, {172}, {194}} → {196},
{ {148}, {148}, {136}, {119}, {104}, {118}, {115}, {126}, {141}, {135}} → {125},
{ {405}, {355}, {306}, {271}, {306}, {315}, {301}, {356}, {348}, {355}} → {422},
{ {162}, {146}, {166}, {171}, {180}, {193}, {181}, {183}, {218}, {230}} → {242},
{ {180}, {193}, {181}, {183}, {218}, {230}, {242}, {209}, {191}, {172}} → {194},
{ {362}, {405}, {417}, {391}, {419}, {461}, {472}, {535}, {622}, {606}} → {508},
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{ {237}, {211}, {180}, {201}, {204}, {188}, {235}, {227}, {234}, {264}} → {302},
{ {170}, {170}, {158}, {133}, {114}, {140}, {145}, {150}, {178}, {163}} → {172},
{ {209}, {191}, {172}, {194}, {196}, {196}, {236}, {235}, {229}, {243}} → {264},
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{ {301}, {356}, {348}, {355}, {422}, {465}, {467}, {404}, {347}, {305}} → {336},
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 {{150}, {178}, {163}, {172}, {178}, {199}, {199}, {184}, {162}, {146}} → {166},
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 {{269}, {270}, {315}, {364}, {347}, {312}, {274}, {237}, {278}, {284}} → {277},
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 {{391}, {419}, {461}, {472}, {535}, {622}, {606}, {508}, {461}, {390}} → {432},
 {{129}, {121}, {135}, {148}, {148}, {136}, {119}, {104}, {118}, {115}} → {126},
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 {{271}, {306}, {315}, {301}, {356}, {348}, {355}, {422}, {465}, {467}} → {404},
 {{242}, {233}, {267}, {269}, {270}, {315}, {364}, {347}, {312}, {274}} → {237},
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 {{204}, {188}, {235}, {227}, {234}, {264}, {302}, {293}, {259}, {229}} → {203},
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 {{347}, {305}, {336}, {340}, {318}, {362}, {348}, {363}, {435}, {491}} → {505},
 {{136}, {119}, {104}, {118}, {115}, {126}, {141}, {135}, {125}, {149}} → {170},
 {{356}, {348}, {355}, {422}, {465}, {467}, {404}, {347}, {305}, {336}} → {340},
 {{242}, {209}, {191}, {172}, {194}, {196}, {196}, {236}, {235}, {229}} → {243},

$\{\{119\}, \{104\}, \{118\}, \{115\}, \{126\}, \{141\}, \{135\}, \{125\}, \{149\}, \{170\}\} \rightarrow \{170\},$
 $\{\{420\}, \{472\}, \{548\}, \{559\}, \{463\}, \{407\}, \{362\}, \{405\}, \{417\}, \{391\}\} \rightarrow \{419\},$
 $\{\{315\}, \{364\}, \{347\}, \{312\}, \{274\}, \{237\}, \{278\}, \{284\}, \{277\}, \{317\}\} \rightarrow \{313\},$
 $\{\{218\}, \{230\}, \{242\}, \{209\}, \{191\}, \{172\}, \{194\}, \{196\}, \{196\}, \{236\}\} \rightarrow \{235\},$
 $\{\{355\}, \{422\}, \{465\}, \{467\}, \{404\}, \{347\}, \{305\}, \{336\}, \{340\}, \{318\}\} \rightarrow \{362\},$
 $\{\{435\}, \{491\}, \{505\}, \{404\}, \{359\}, \{310\}, \{337\}, \{360\}, \{342\}, \{406\}\} \rightarrow \{396\},$
 $\{\{278\}, \{284\}, \{277\}, \{317\}, \{313\}, \{318\}, \{374\}, \{413\}, \{405\}, \{355\}\} \rightarrow \{306\},$
 $\{\{126\}, \{141\}, \{135\}, \{125\}, \{149\}, \{170\}, \{170\}, \{158\}, \{133\}, \{114\}\} \rightarrow \{140\},$
 $\{\{203\}, \{229\}, \{242\}, \{233\}, \{267\}, \{269\}, \{270\}, \{315\}, \{364\}, \{347\}\} \rightarrow \{312\},$
 $\{\{171\}, \{180\}, \{193\}, \{181\}, \{183\}, \{218\}, \{230\}, \{242\}, \{209\}, \{191\}\} \rightarrow \{172\},$
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 $\{\{243\}, \{264\}, \{272\}, \{237\}, \{211\}, \{180\}, \{201\}, \{204\}, \{188\}, \{235\}\} \rightarrow \{227\},$
 $\{\{505\}, \{404\}, \{359\}, \{310\}, \{337\}, \{360\}, \{342\}, \{406\}, \{396\}, \{420\}\} \rightarrow \{472\},$
 $\{\{132\}, \{129\}, \{121\}, \{135\}, \{148\}, \{148\}, \{136\}, \{119\}, \{104\}, \{118\}\} \rightarrow \{115\},$
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 $\{\{201\}, \{204\}, \{188\}, \{235\}, \{227\}, \{234\}, \{264\}, \{302\}, \{293\}, \{259\}\} \rightarrow \{229\},$
 $\{\{149\}, \{170\}, \{170\}, \{158\}, \{133\}, \{114\}, \{140\}, \{145\}, \{150\}, \{178\}\} \rightarrow \{163\},$
 $\{\{315\}, \{301\}, \{356\}, \{348\}, \{355\}, \{422\}, \{465\}, \{467\}, \{404\}, \{347\}\} \rightarrow \{305\},$
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 $\{\{178\}, \{163\}, \{172\}, \{178\}, \{199\}, \{199\}, \{184\}, \{162\}, \{146\}, \{166\}\} \rightarrow \{171\},$
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 $\{\{293\}, \{259\}, \{229\}, \{203\}, \{229\}, \{242\}, \{233\}, \{267\}, \{269\}, \{270\}\} \rightarrow \{315\},$
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 $\{\{422\}, \{465\}, \{467\}, \{404\}, \{347\}, \{305\}, \{336\}, \{340\}, \{318\}, \{362\}\} \rightarrow \{348\},$
 $\{\{114\}, \{140\}, \{145\}, \{150\}, \{178\}, \{163\}, \{172\}, \{178\}, \{199\}, \{199\}\} \rightarrow \{184\},$
 $\{\{312\}, \{274\}, \{237\}, \{278\}, \{284\}, \{277\}, \{317\}, \{313\}, \{318\}, \{374\}\} \rightarrow \{413\},$
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 $\{\{166\}, \{171\}, \{180\}, \{193\}, \{181\}, \{183\}, \{218\}, \{230\}, \{242\}, \{209\}\} \rightarrow \{191\},$
 $\{\{362\}, \{348\}, \{363\}, \{435\}, \{491\}, \{505\}, \{404\}, \{359\}, \{310\}, \{337\}\} \rightarrow \{360\},$
 $\{\{199\}, \{199\}, \{184\}, \{162\}, \{146\}, \{166\}, \{171\}, \{180\}, \{193\}, \{181\}\} \rightarrow \{183\},$
 $\{\{404\}, \{347\}, \{305\}, \{336\}, \{340\}, \{318\}, \{362\}, \{348\}, \{363\}, \{435\}\} \rightarrow \{491\},$
 $\{\{194\}, \{196\}, \{196\}, \{236\}, \{235\}, \{229\}, \{243\}, \{264\}, \{272\}, \{237\}\} \rightarrow \{211\},$
 $\{\{302\}, \{293\}, \{259\}, \{229\}, \{203\}, \{229\}, \{242\}, \{233\}, \{267\}, \{269\}\} \rightarrow \{270\},$
 $\{\{115\}, \{126\}, \{141\}, \{135\}, \{125\}, \{149\}, \{170\}, \{170\}, \{158\}, \{133\}\} \rightarrow \{114\},$
 $\{\{188\}, \{235\}, \{227\}, \{234\}, \{264\}, \{302\}, \{293\}, \{259\}, \{229\}, \{203\}\} \rightarrow \{229\},$
 $\{\{267\}, \{269\}, \{270\}, \{315\}, \{364\}, \{347\}, \{312\}, \{274\}, \{237\}, \{278\}\} \rightarrow \{284\},$
 $\{\{178\}, \{199\}, \{199\}, \{184\}, \{162\}, \{146\}, \{166\}, \{171\}, \{180\}, \{193\}\} \rightarrow \{181\},$
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 $\{\{491\}, \{505\}, \{404\}, \{359\}, \{310\}, \{337\}, \{360\}, \{342\}, \{406\}, \{396\}\} \rightarrow \{420\},$
 $\{\{270\}, \{315\}, \{364\}, \{347\}, \{312\}, \{274\}, \{237\}, \{278\}, \{284\}, \{277\}\} \rightarrow \{317\},$
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 $\{\{318\}, \{362\}, \{348\}, \{363\}, \{435\}, \{491\}, \{505\}, \{404\}, \{359\}, \{310\}\} \rightarrow \{337\},$
 $\{\{359\}, \{310\}, \{337\}, \{360\}, \{342\}, \{406\}, \{396\}, \{420\}, \{472\}, \{548\}\} \rightarrow \{559\},$
 $\{\{229\}, \{203\}, \{229\}, \{242\}, \{233\}, \{267\}, \{269\}, \{270\}, \{315\}, \{364\}\} \rightarrow \{347\},$

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{ {172}, {178}, {199}, {199}, {184}, {162}, {146}, {166}, {171}, {180} } → {193},
{ {374}, {413}, {405}, {355}, {306}, {271}, {306}, {315}, {301}, {356} } → {348},
{ {406}, {396}, {420}, {472}, {548}, {559}, {463}, {407}, {362}, {405} } → {417}
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Out[11]= { {11, 175.628}, {12, 176.606}, {13, 179.086}, {14, 178.505}, {15, 177.126},
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{36, 185.552}, {37, 194.887}, {38, 189.61}, {39, 192.868}, {40, 195.251},
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{51, 202.023}, {52, 222.535}, {53, 230.782}, {54, 238.792}, {55, 214.061},
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{96, 337.976}, {97, 370.246}, {98, 373.028}, {99, 380.36}, {100, 402.396},
{101, 408.102}, {102, 401.388}, {103, 376.162}, {104, 344.826}, {105, 326.888},
{106, 358.428}, {107, 369.084}, {108, 369.043}, {109, 394.825}, {110, 396.14},
{111, 402.195}, {112, 413.097}, {113, 415.727}, {114, 414.639}, {115, 402.899},
{116, 379.841}, {117, 358.275}, {118, 379.211}, {119, 383.491}, {120, 378.575},
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{126, 416.718}, {127, 404.251}, {128, 389.085}, {129, 370.089}, {130, 386.839},
{131, 397.095}, {132, 395.51}, {133, 409.663}, {134, 409.468}, {135, 413.207},
{136, 416.541}, {137, 418.265}, {138, 418.295}, {139, 414.891}, {140, 408.346},
{141, 401.221}, {142, 409.708}, {143, 410.908}, {144, 408.613}, {145, 412.865} }

